

AD-A052 080

ARINC RESEARCH CORP SANTA ANA CALIF
MISSILE-X PROGRAM LOGISTIC ELEMENT MANAGEMENT PLAN FOR TECHNICA--ETC(U)
AUG 77 A N WINTER, A J FREMER
W77-1053-TN11 F04606-76-A-0087

F/G 15/5

UNCLASSIFIED

| OF |

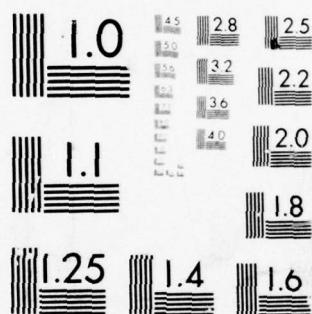
AD
A052 080



NL



END
DATE
FILMED
5-78
DDC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TECHNICAL NOTE

(1)
SC

AD A052080

MISSILE-X PROGRAM
LOGISTIC ELEMENT MANAGEMENT PLAN
FOR
TECHNICAL DATA LEMs

22 August 1977

DDC
RECEIVED
MAR 29 1978
F100T10D

AD No. 1
DDC FILE COPY

Prepared for
DEPARTMENT OF THE AIR FORCE
SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC)
ICBM Program Office

Under Contract F04606-76-A-0087-R901

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

Publication W77-1953-TN11

ARINC RESEARCH CORPORATION
P.O. Box 1375/Santa Ana, Calif.

6

1

MISSILE-X PROGRAM
LOGISTIC ELEMENT MANAGEMENT PLAN
FOR
TECHNICAL DATA LEMs

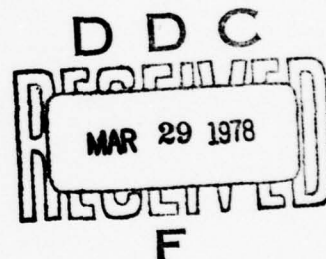
11 22 August 1977

12 37 p.

One of 12 LEM Plans
Prepared for
DEPARTMENT OF THE AIR FORCE
SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC)
ICBM Program Office
Under Contract F04606-76-A-0087-R901

9 Technical note,

10 Prepared by
A.N. Winter
A.J. Fremer



 **ARINC** RESEARCH CORPORATION

CORPORATE HEADQUARTERS
2551 Riva Road
Annapolis, MD 21401

SANTA ANA BRANCH
1222 E. Normandy Place
Santa Ana, CA 92702

Publication W77-1953-TN11

14

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

400 711

48

**MISSILE-X PROGRAM
LOGISTIC ELEMENT MANAGEMENT PLAN
FOR
TECHNICAL DATA LEMs**

22 August 1977



**SPACE AND MISSILE SYSTEMS ORGANIZATION
AIR FORCE SYSTEMS COMMAND**

**Prepared by
Logistics (MNL)
Deputy for Intercontinental Ballistic Missiles**

MISSILE-X PROGRAM
LOGISTIC ELEMENT MANAGEMENT PLAN
FOR
TECHNICAL DATA LEMs

22 August 1977



115	11a Section	<input checked="" type="checkbox"/>
116	11b Section	<input type="checkbox"/>
117	11c Section	<input type="checkbox"/>
BY		
DISTRIBUTION/AVAILABILITY CODES		
118	11d	SPECIAL
A		

Approved _____
Lester E. Eklund, Colonel, USAF
Director, Logistics
Deputy for Intercontinental Ballistic Missiles

Date _____

Approved _____
Winston D. Patterson, Colonel, USAF
Director, Deployment
Deputy for Intercontinental Ballistic Missiles

Date _____

Approved _____
Aloysius G. Casey, Colonel, USAF
Assistant Deputy, Missile-X

Date _____

FOREWORD

This Technical Data Logistic Element Management Plan is one of twelve plans supplementing the guidance and direction for the Integrated Logistic Support (ILS) program as delineated in the Missile-X Integrated Logistic Support Plan (ILSP). Whereas the ILSP provides general guidance and direction for integrating all logistic elements into the overall program requirements, this plan treats the specific actions, milestones, and coordination efforts of the Logistic Element Managers for Technical Data (TD-LEMs) responsible for 1) Technical Publications Technical Data and 2) Engineering Technical Data. It has been written to assist them in fulfilling their responsibilities toward achieving the ILS objectives of the MX Program.

The majority of information contained in Sections 1 through 4 herein is common to all plans. Sections 5 and 6 present information pertinent to the TD-LEMs' efforts.

CONTENTS

FOREWORD	ii
1. INTRODUCTION	1-1
1.1 Background	1-1
1.2 Purpose	1-2
1.3 MX Program	1-2
2. SCOPE	2-1
3. REFERENCE DOCUMENTS	3-1
4. PROGRAM MANAGEMENT	4-1
4.1 ILS Program Organization	4-1
4.1.1 Deputy Program Manager for Logistics	4-1
4.1.2 Logistic Element Managers	4-2
4.2 ILS Management Information System	4-4
5. GENERAL REQUIREMENTS	5-1
5.1 Integrated Logistic Support Program	5-1
5.2 Technical Data Logistic Element	5-3
6. TD-LEMS MANAGEMENT RESPONSIBILITIES AND TASKS	6-1
6.1 Responsibilities	6-1
6.1.1 Engineering Technical Data	6-1
6.1.2 Technical Publication Technical Data	6-1
6.2 Management Tasks	6-2
6.2.1 Engineering Technical Data Tasks	6-2
6.2.2 Technical Publications Technical Data	6-5
6.3 Preface to Task Table	6-8
APPENDIXES	
A Missile-X Program Logistic Element Manager Directory	A-1
B Acronyms and Abbreviations	B-1
C Schedule for Technical Publications Subelement	C-1

1 INTRODUCTION

1.1 BACKGROUND

In accordance with DoD Directive 4100.35, the promulgating authority of AFR 800-8, and the guidance provided by AFP 800-7, the MX Program Office has implemented an Integrated Logistic Support program for the MX Weapon System. The ILS program, as delineated in the Integrated Logistic Support Plan (ILSP), is intended to ensure that the weapon system is designed with due consideration given to its supportability and that the required support will be attained within an affordable, minimum life cycle cost.

For the MX System, logistic elements – areas of support activity that collectively comprise the management concept of ILS – have been defined. These are:

- Maintainability Interface (M)
- Reliability Interface (R)
- Nuclear Hardness and Survivability Interface (NH&S)
- Maintenance Planning (MP)
- Support and Test Equipment (SE)
- Supply Support (SS)
- Transportation and Packaging (T&P)
- Technical Data (TD)
- Support Facilities (SF)
- Personnel and Training (P&T)
- Logistic Support Management Information (LSMI)
- Logistic Support Resource Funds (LSRF)

For each area of support activity, the MX Program Office has designated a logistic element manager (LEM) responsible for managing the accomplishment of the tasks associated with his element. The element discussed in this plan has been divided

into the subelements of Engineering Technical Data (ETD) and Technical Publications Technical Data (PTD). ETD encompasses engineering and production drawings, specification lists, etc. PTD comprises all publications covered under the Air Force Technical Order System. A LEM has been assigned to each of these subelements.

1.2 PURPOSE

This document is a Logistic Element Management Plan for the Technical Data element. It has been written to provide each of the TD-LEMs with guidance in managing his subelement, and ensuring the integration of ILS technical data requirements into the system design process. This plan, and those developed for the other eleven logistic elements, will become supplementary documents to the ILSP.

1.3 MX PROGRAM

The MX Program has been implemented to provide the technology base for the development of an improved land-based strategic missile weapon system. Efforts are being directed toward the design, development, and deployment of an ICBM system within one of two nuclear hardened, multiple aim point (MAP) basing alternatives. The two currently favored basing options are the buried-trench and shelter-based weapon systems.

Full scale development (FSD) of the MX Weapon System is divided into two major efforts: missile development, including the missile and canister; and weapon system development, which includes the MAP basing hardware, software, and facilities, and the integration of the missile/canister with these equipments and facilities.

This Logistic Element Management Plan structures the technical data logistic requirements of the ILSP into identifiable responsibilities of each TD-LEM, and delineates the tasks associated with these responsibilities. The plan is applicable to the FSD phase of the MX Weapon System, with overlap to the preceding validation and system definition phases and succeeding production/deployment phases. The plan applies to all elements of the weapon system, including the air vehicle, support functions, and the selected basing option. In addition this plan:

- a. Provides an overview of the MX program management concept, and the LEMs' position in the management structure.
- b. Describes the ILS program and the functions of the TD-LEM within that program.
- c. Describes the participation of the TD-LEM in the ILS Management Information System.
- d. Indicates the interdependencies among tasks and the coordination among all members of the Integrated Logistic Support Management Team (ILSMT), the project element officers (PEOs), and systems engineering.
- e. Presents a basic schedule for the performance of tasks by relating each task to the time frame of major program events.
- f. Indicates the interrelationships of the TD-LEM with the remaining logistic elements.

REFERENCE DOCUMENTS

The following document listing is provided as a reference source relating to the implementation of an ILS program and the Technical Data logistic element.

DoD Directive 4100.35	Development of Integrated Logistic Support for Systems/Equipment, 1 October 1970
DoD 4100.35G	Integrated Logistic Support Planning Guide for DoD Systems and Equipment, 15 October 1968
AFR 8-2	Air Force Technical Order System, 23 November 1971
AFR 310-1	Management of Contract Data, 30 June 1969
AFR 800-8	Integrated Logistic Support (ILS) Program for Systems and Equipment, 27 July 1972
AFP 800-7	Integrated Logistic Support Implementation Guide for DoD Systems and Equipments, March 1972
MIL-STD-100B	Engineering Drawing Practices, Change 2, 15 April 1976
MIL-STD-490	Specification Practices, Change 2, 18 May 1972
MIL-D-1000	Drawing, Engineering and Associated Lists, 20 February 1976
SAMSO Supplement to AFR 800-8	Integrated Logistic Support (ILS) Program for Systems and Equipment, 7 September 1976
ICBM PO ED 77-6	System Requirements Analysis Programs for the MX Weapon System, 24 May 1977
ILSP	Missile-X Integrated Logistic Support Plan, June 1977
PO Manual	ICBM PO Project Officers' Manual, 1 July 1976
SAMSO/MNL Publication	ILS Management Information System Report, 31 August 1977

PROGRAM MANAGEMENT

Management of the MX Weapon System Program is the responsibility of the ICBM Program Office. The Program Manager has the overall responsibility for acquisition and integration management of the program, and is supported by the following Directorates within the ICBM Program Office:

Logistics

Engineering

System Acquisition Management Support

Procurement and Production

Deployment

Program Control

The ICBM Program Office comprises a team of Air Force and contractor personnel. That office operates with a functionally decentralized organizational structure, which has resulted in the implementation of the Project Element Management System. In this system, the program is divided into a series of discrete, functional elements, each managed as an entity by a designated project element officer responsible for monitoring the technical, cost, and schedule performance of one or more MX associate contractors. No prime contractor will be designated for the MX Program. Rather, the ICBM Program Office will function as the system integrator.

4.1 ILS PROGRAM ORGANIZATION

4.1.1 Deputy Program Manager for Logistics

The Deputy Program Manager for Logistics (DPML) was assigned from HQ AFLC with the concurrence of the MX Program Manager, and serves as the focal point for MX logistics management. The DPML and his organization are an integral part of

the ICBM Program Office and form the Directorate of Logistics (MNL). Within the MX Program, it is the responsibility of the DPML to assure that:

- a. Continuous attention is given to logistic support posture and costs throughout the acquisition process.
- b. Tradeoff studies affecting system design are evaluated to determine their impact on supportability, life cycle cost, and operational requirements.
- c. All objectives of ILS are achieved for the MX Weapon System.

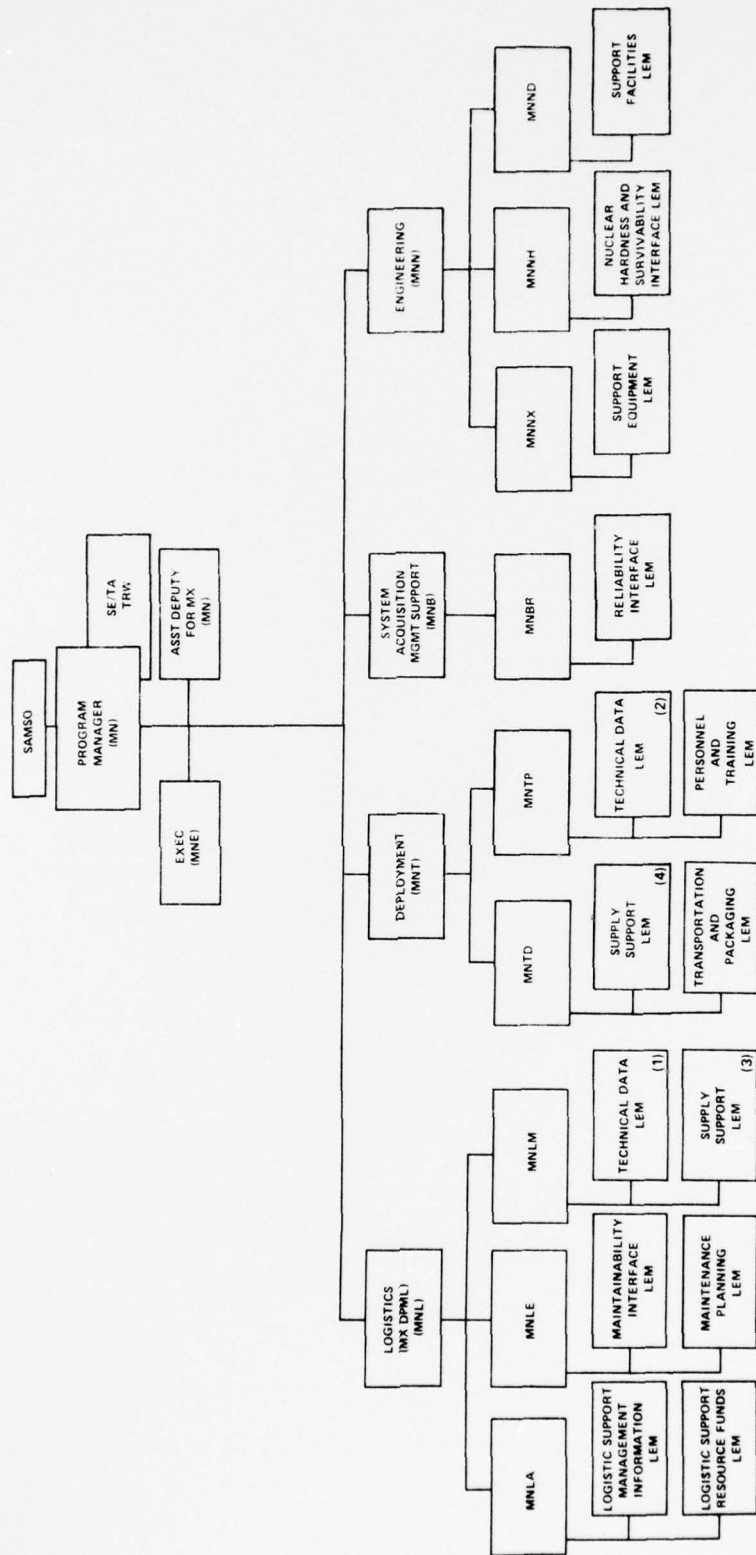
The DPML will draw upon the support of the designated logistic element managers to obtain timely contributions to those system design and support decisions which affect logistic support costs and effectiveness throughout the life of the system.

4.1.2 Logistic Element Managers

As discussed in paragraph 4, the Program Office operates with a functionally decentralized organization structure. This decentralization has positioned ILS elements (as defined by AFR 800-8) outside of the Logistics Directorate, in company with those engineering design elements (e.g., Reliability) normally external to the logistics organization. Logistic element managers have been designated within each functional logistic-related area. In addition, the Technical Data and Supply Support elements are further separated into subelements to gain maximum benefits from the decentralized organizational structure. The elements, by Directorate, are shown in Figure 4-1.

The manager for each TD subelement is the single point of contact for the DPML in the management of all logistic integration aspects of the assigned subelement. The LEMs assure that the tasks associated with their subelements, as defined within this Logistic Element Management Plan, are accomplished. They provide liaison and coordination among the other logistic element managers as required for the achievement of integrated logistic support. They further assure that all relevant ILS data are collected, analyzed, reported, and disseminated, as appropriate, for their subelement.

Each LEM also plays a key role in supporting the Program Office's function as integrating agency of all associate contractor activities. The TD-LEM support systems engineering and the PEOs by providing the management assistance needed to identify the contractual requirements relative to their subelements. In so doing,



SUBELEMENTS:
 (1) Engineering Data
 (2) Technical Orders
 (3) Operational
 (4) Preparational

Figure 4-1. MX Program Logistic Element Managers

they assure that a system integration approach is used in determining the requirements for each associate contractor. Due to the large number of associates involved, a significant coordination effort will be required by each LEM within his logistic sub-element to maintain cognizance of the activities that impact on logistics.

Each LEM is a member of the Integrated Logistic Support Management Team, and through active participation as a team member he supports the DPML in managing the accomplishment of the Program Office's acquisition logistics tasks.

It is through the exchange of information at ILSMT meetings and the inter-relationships of LEMs that the DPML will acquire the program information necessary to assure the integration of logistic support elements into the total program requirements.

4.2 ILS MANAGEMENT INFORMATION SYSTEM

The ILS Management Information System was developed to assist the DPML and all logistic element managers in their efforts to achieve the logistic objectives of the MX Weapon System. Management and direction of the information system's activities are the responsibility of the DPML. This responsibility is discharged primarily through his position as chairman of the ILSMT and of technical interchange meetings.

Successful implementation of the ILS MIS depends on each LEM's accomplishment of the tasks delineated in his LEM plan, through fulfilling his reporting responsibilities, and through active participation in the ILSMT.

The ILS Management Information System Report dated 31 August 1977 provides a complete description of the ILS MIS and the LEMs' role in implementing the system. Figure 4-2 depicts the information flow of the ILS MIS, and will serve as an aid in understanding the data input/output and coordination activities of the TD-LEM as defined in Sections 5 and 6 of this plan.

In general, much of the management information will involve estimates, or other planning data in which the quality of the data used will vary over some acceptable range. The criteria provided for use by the LEMs in describing the relative quality of MIS data are presented in tables within the Integrated Logistic Support Management Information System Report. Assistance to the LEMs for participating in the ILS MIS, as both contributor and user, will be provided by the Logistic Support Management Information LEM.

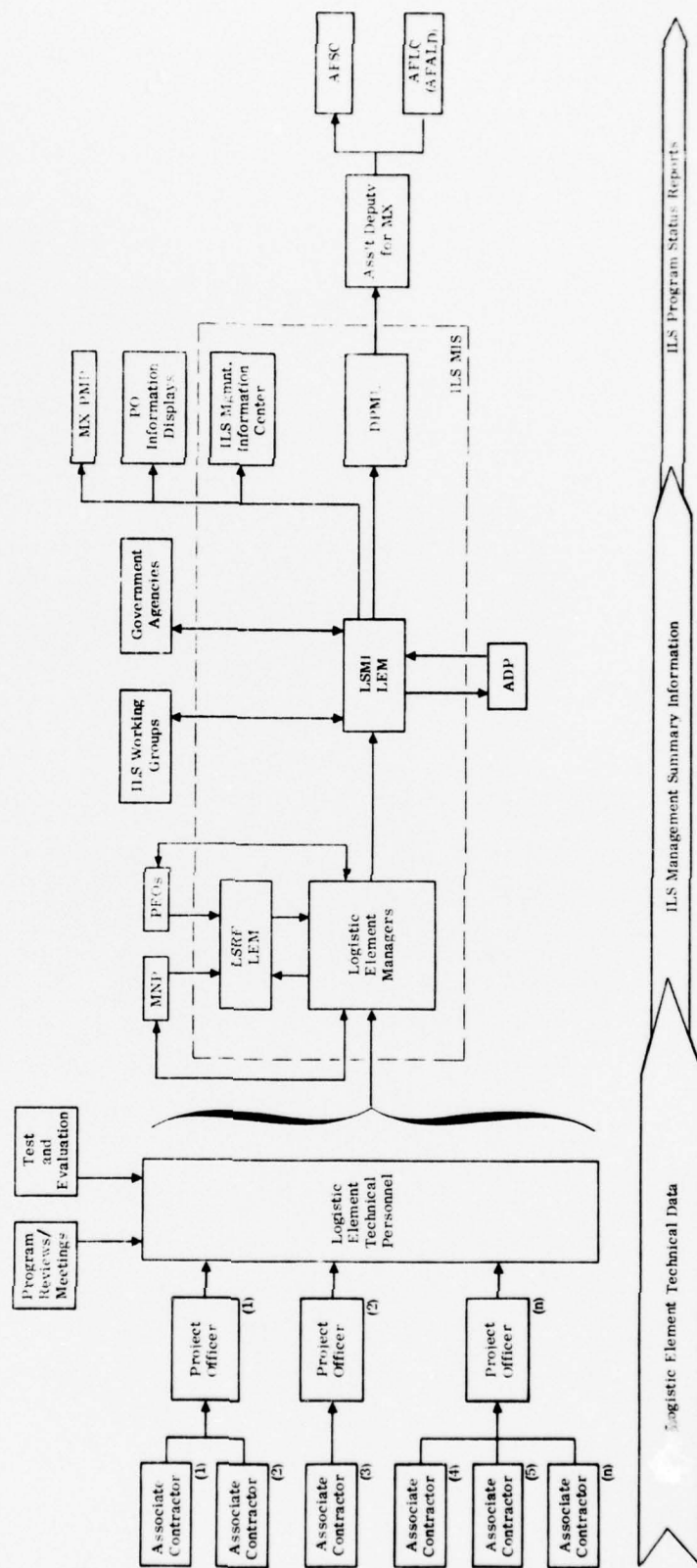


Figure 4-2. Information Flow of the ILS MIS

A typical schedule showing program events for the Technical Publications subelement is shown in Appendix C. This schedule depicts the general type of information required as input to the Management Information System for tracking the progress of each associate contractor in fulfilling the requirements for a specific logistic element. This type of information is also a prerequisite to the LEMs' efforts of tailoring the task schedule shown in Tables 6-1a and 6-1b to each associate contractor's unique development activities.

GENERAL REQUIREMENTS

5.1 INTEGRATED LOGISTIC SUPPORT PROGRAM

Integrated Logistic Support is a concept that encompasses the total and timely support of a system/equipment, within acceptable life cycle cost criteria, for the duration of its useful life. Realization of this concept is achieved through planning and analysis tasks for the subsequent procurement of all required support as part of the total acquisition process.

An ILS program has been implemented for the MX Weapon System to assure that the ILS concept impacts the system design process in a manner that will improve supportability and control O&S costs. Within the ILS program, logistic elements have been identified (see paragraph 1.1). These elements are areas of support activity which, when collectively considered, provide the basis for the acquisition of the human, material, and financial resources required to maintain a system in an acceptable state of operational readiness within affordable cost criteria.

Essentials of the ILS program include the analysis and definition of quantitative and qualitative logistic support requirements; the prediction of logistic support costs; and the performance of tradeoff studies and evaluations. The responsibility for performance of these efforts rests with the ICBM Program Office and its supporting directorates. However, the responsibility for monitoring and assuring the accomplishment of these efforts has been assigned to the logistic element managers. Each Logistic Element Management Plan delineates the detailed areas of responsibility for a specific LEM.

Figure 5-1 depicts the information flow among the various LEMs during the performance of their ILS efforts. While the information flow will primarily be in the direction indicated by the arrows in that diagram, situations will arise where information must be passed in both directions. Additionally, the information flow might be influenced by variations in logistic information requirements among the configuration end items. Figure 5-1a (inset in Figure 5-1) indicates that the impact of the ILS concept on the system design is achieved through the logistic support analysis efforts.

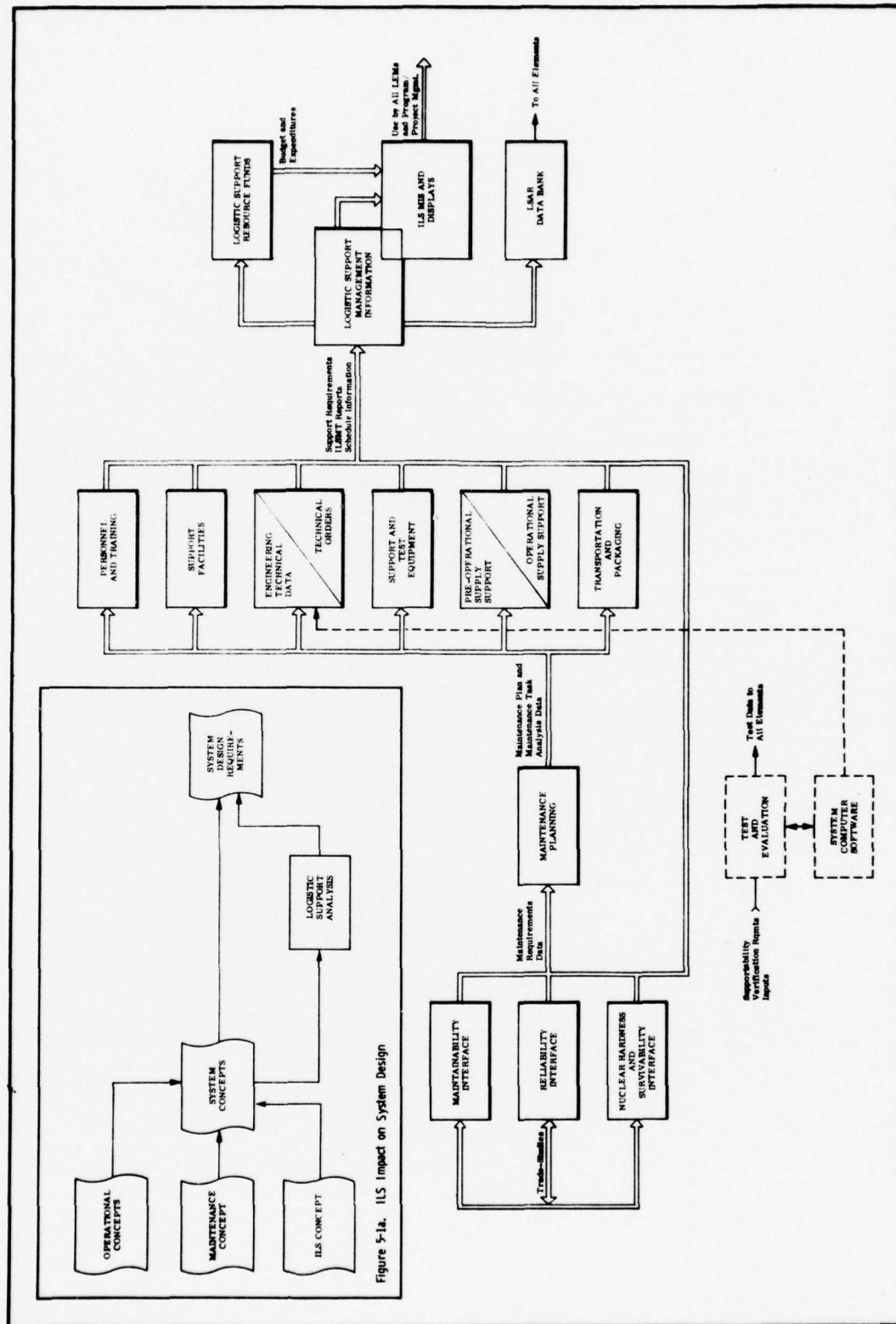


Figure 5-1. Primary Interface Relationships of Logistic Elements

5.2 TECHNICAL DATA LOGISTIC ELEMENT

The Technical Data element comprises those efforts required to ensure that adequate and timely information is available for the assembly, installation, checkout, operation and maintenance of the MX Weapon System. Technical data include, but are not limited to, items such as engineering and production drawings; technical specifications; spares and repair parts lists; operating, maintenance and modification instructions; inspection lists and calibration procedures; planning documentation; special-purpose computer programs and related software; and other forms of information essential for the performance of operational and support tasks.

A series of tasks will be implemented by the ETD- and PTD-LEMs to track the progress of the Technical Data element and to ensure that technical documentation criteria are consistent with the ILS process. These LEMs will prepare schedules of their respective assurance tasks for each associate contractor supporting full scale development (FSD).

The primary interface relationship of both the ETD and PTD subelements is with the SE element, since engineering technical data and technical publications must be provided for all support and test equipment items provided as GFE. Secondary relationships exist with various other logistic elements, in that coordination will be required during the performance of selected tasks. These coordination efforts are to ensure compatibility of technical data with the overall ILS process.

In performing their assurance functions the ETD- and PTD-LEMs will coordinate as required with other LEMs, PEOs, OPRs and deployment, logistics, and human factors personnel. Additionally, in areas such as test and evaluation and software support that do not have LEM representation, coordination may be required with POs. The LEMs' membership in the ILSMT will require the preparation of status reports, the initiation of problem/impact statements, the development of schedule information for the MIS, and the resolution of assigned action items.

TD-LEMs MANAGEMENT RESPONSIBILITIES AND TASKS

6.1 RESPONSIBILITIES

The Technical Data LEMs assist the Deputy Program Manager for Logistics in assuring that the technical data aspects of the ILS program are achieved, and that these data are developed as an integral part of the system/equipment design process.

6.1.1 Engineering Technical Data

Responsibilities of the ETD-LEM include:

- a. Coordinating the logistic subelement of Engineering Technical Data for the MX Program
- b. Serving as the point of contact for MX logistic support analysis activities associated with engineering technical data
- c. Establishing lines of communication with each PEO and assisting in all matters associated with engineering technical data
- d. Providing inputs to the ILS Management Information System pertaining to engineering technical data
- e. Ensuring that cost considerations are reflected in the preparation of engineering technical data requirements
- f. Acting as the engineering technical data representative to the ILSMT.

6.1.2 Technical Publication Technical Data

Responsibilities of the PTD-LEM include:

- a. Coordinating the logistic subelement of Technical Publication Technical Data for the MX Program
- b. Serving as the point of contact for MX logistic support analysis activities associated with technical publications
- c. Establishing lines of communication with each PEO and assisting in all matters pertaining to technical publications

- d. Providing inputs to the ILS Management Information System associated with technical publications
- e. Ensuring that criteria are developed concerning the cost effectiveness of technical publications requirements
- f. Acting as the technical publications representative to the ILSMT.

6.2 MANAGEMENT TASKS

The scope of each task identified in this plan must be tailored by the TD-LEMs for each specific procurement. Consequently, the applicable data items and the degree of coordination activities will vary with the scope of the task. Similarity will be evident between some of the tasks for both elements.

While the tasks identified herein are intended to be comprehensive relative to the scope of the TD-LEMs' responsibilities, additional tasks may become apparent during the implementation of this plan. The LEMs are responsible for assuring that these new tasks are planned and scheduled for each applicable procurement. The new tasks should be documented, this plan updated as applicable, and the appropriate information provided to the LSMT-LEM for updating the MIS and its information displays.

Described below are the tasks to be performed. Tables 6-1a and b (see paragraph 6.3) present task summaries, applicable data items, expected coordination required for the tasks, and a schedule relating tasks to major program events.

6.2.1 Engineering Technical Data Tasks

The following tasks are associated with the Engineering Technical Data subelement.

● Task 1

Assure that engineering technical data requirements are developed for each configuration end item (CEI) procurement. This task is performed by a systems engineering review of the AFSC form 40s prior to request for proposals (RFP) release. These forms are reviewed to ensure that the applicable data item descriptions (DIDs) have been tailored as appropriate to each CEI procurement. The ETD-LEM coordinates with each PEO, systems engineering, and applicable logistic POs to ascertain that the AFSC form 40s have been prepared, that the DIDs have been

modified/developed, and that the Contract Data Requirements List (CDRL) for each CEI reflects ETD delivery requirements. Some review efforts may be performed by the ETD-LEM to verify that the necessary information has been prepared.

- Task 2

Assure that engineering technical data are available for each item of Government furnished equipment (GFE). Through close liaison with each PEO, the SE-LEM, and systems engineering, the ETD-LEM determines that engineering technical data are or will be available for each identified piece of GFE. It may be necessary for the ETD-LEM to track the delivery schedule of each item of GFE to verify that engineering technical data will be available to support the installation/use of the GFE in a time-frame consistent with MX Weapon System tests and operations.

- Task 3

Assure that CEI proposals are evaluated relative to each bidder's approach to the development and submittal of engineering technical data. The ETD-LEM coordinates with each PEO and with systems engineering to determine that proposal review criteria have been developed for this subelement; whether each bidder's proposal adheres to SOW requirements for the subelement; and whether alternate approaches that may be suggested by a bidder are in consonance with the FSD program. The ETD-LEM may assist in the development of proposal evaluation criteria and review the results of the proposal evaluation effort to verify that the criteria were utilized.

- Task 4

Assure that contractor-prepared engineering drawing plans are reviewed/ approved. Through coordination with each PEO and systems engineering, the ETD-LEM ensures that plans for the preparation and submittal of engineering technical data are reviewed and approved. The ETD-LEM may inspect these plans to ensure their adequacy.

- Task 5

Assure that design change notices and engineering change proposals (ECPs) are reviewed and evaluated for their impact on engineering technical data. Both of these items impact on engineering technical data in that drawings, specifications, etc., must be updated to reflect as-built conditions. The ETD-LEM ascertains through coordination with each PEO, systems engineering, and appropriate LEMs, that all

review and analysis efforts have been performed. Again, it may be necessary for the ETD-LEM to review these efforts to verify that the evaluations have been performed.

- Task 6

Assure that requests for deviations/waivers are reviewed for their potential impact on engineering technical data. Deviations/waivers are usually requested by contractors when a system/equipment requirement cannot be met. These requests must be evaluated for possible changes to specifications, drawings, etc. The ETD-LEM verifies that reviews have been performed and that the impact on engineering technical data have been identified through coordination with each PEO, systems engineering, and appropriate LEMs.

- Task 7

Assure that the results of design reviews and audits are reviewed and evaluated for their possible effects on engineering technical data. Design reviews and audits are utilized to assess the progress a contractor is making toward achieving the requirements established for his CEI. The ETD-LEM coordinates with each PEO, systems engineering, and logistic POs in implementing this task. From this coordination process, the ETD-LEM ascertains that the reviews have been performed and that any problems/discrepancies impacting engineering technical data have been or are being resolved.

- Task 8

Assure that the first article review of each CEI includes an assessment of the adequacy and accuracy of the engineering technical data in presenting as-built conditions. The ETD-LEM coordinates with each PEO, logistic POs, and systems engineering to verify that during first article reviews an evaluation of the engineering technical data is performed. These evaluations reflect the status of the data in depicting the design of the CEI. The ETD-LEM may inspect the results of the review effort to verify the completeness of the technical disclosure package.

- Task 9

Support the preparation and updating of logistic documentation. The ETD-LEM reviews/develops/updates engineering technical data contained in or to be a part of the ILS documentation for the MX Weapon System. Guidance for this effort will be provided by the DPML. Documents containing ILS information, prepared by both the

Logistics Directorate and other program groups, will be reviewed in this task. The ETD-LEM will provide the logistic information concerning engineering technical data for each appropriate document. Coordination requirements include systems engineering, the OPRs for each document, and other LEMs as necessary.

6.2.2 Technical Publications Technical Data

The following tasks are associated with the Technical Publications subelement.

- Task 1

Assure that the development, quality assurance, and sustaining efforts for technical publications are planned and implemented. The PTD-LEM coordinates with systems engineering and the deployment and human factors POs to verify that a Program Plan and a Quality Assurance Plan for Technical Publications have been developed/implemented. The Program Plan addresses both the development of and sustaining efforts for technical publications. The Quality Assurance Plan covers in-process reviews, prepublication reviews, validation, verification and change control planning for MX Weapon System publications. These plans provide the basic documentation for guiding the technical publications efforts.

- Task 2

Assure that technical publications are identified/developed to support the operation and maintenance of GFE. The PTD-LEM coordinates with systems engineering, the SE-LEM, each PEO, and the deployment and human factors POs to determine that technical publications will be provided for all identified pieces of GFE. These documents must be available for the operation and maintenance of the GFE in a timeframe consistent with MX Weapon System hardware deliveries. The PTD-LEM may track the availability schedules for GFE and their technical publications in the performance of this effort.

- Task 3

Assure that technical publications requirements are identified for each CEI procurement. This task is performed prior to RFP release. The PTD-LEM coordinates with the human factors POs to determine that the requirements conference for technical publications has been convened. He also coordinates with these POs and each PEO to ascertain that the requirements have been established for each CEI; that AFSC form 40s and appropriate DIDs have been provided; and that the CDRL

establishes delivery information for the technical publications. The PTD-LEM may inspect selected documentation to verify that the required information has been prepared and is, or will be, a part of the RFP package.

• Task 4

Assure that CEI proposals are evaluated relative to each bidder's approach to the development and preparation of technical publications. The PTD-LEM coordinates with human factors POs, with each PEO, and with systems engineering to establish that proposal review criteria have been prepared for this subelement; whether each bidder's proposal adheres to the SOW requirements for the subelement; and whether alternate approaches that may be presented by the bidders are compatible with the FSD program. The PTD-LEM may provide assistance in developing proposal review criteria for this subelement. He may also inspect the results of the proposal evaluation activities to verify the application of the review criteria.

• Task 5

Assure that contractor-developed technical publications plans are reviewed/approved. Through coordination with each PEO, human factors POs, and systems engineering, the PTD-LEM ascertains that contractor-prepared technical publications plans have been submitted in accordance with the applicable CDRL item; that these plans are reviewed by the responsible technical personnel; and that the plans receive approval for implementation by the contractors. The PTD-LEM may track the progress of technical publications development by monitoring the schedules for these documents.

• Task 6

Assure that ECPs and requests for deviations/waivers are reviewed for their impact on technical publications. Changes are made to a baseline design through the use of ECPs. When one or more design requirements cannot be met, deviations/waivers are usually requested. In both instances, evaluations are essential to identify the effects either item may have on technical publications. The PTD-LEM verifies that the reviews and analyses have been performed and that actual or potential impacts on technical publications have been identified. The PTD-LEM coordinates with human factors POs, each PEO, systems engineering, and other LEMs as necessary in implementing this task. He may elect to review some documentation to ascertain that the analyses have been performed.

- Task 7

Assure that LSAR data sheets are reviewed for information applicable to technical publications. The PTD-LEM coordinates with logistic POs, human factors POs, and each PEO to ascertain that LSAR data sheets are inspected for technical publications information and that the information is utilized in the development of the appropriate publications.

- Task 8

Assure that the results of design reviews and audits are evaluated for their impact on technical publications. Design reviews and audits provide an assessment of a contractor's progress toward achievement of established requirements for his CEI. The PTD-LEM coordinates with human factors POs, each PEO, and systems engineering to verify that reviews and audits have been performed and that problems affecting technical publications are being or have been resolved. The PTD-LEM may inspect the results of these efforts to determine the status of any problems affecting technical publications.

- Task 9

Assure that contractor validation of technical publications is performed. Through close liaison with each PEO, systems engineering, and human factors POs, the PTD-LEM ensures that validation of technical publications is accomplished by the cognizant contractors in accordance with imposed requirements and that deficiencies/discrepancies are corrected.

- Task 10

Assure that technical publications are verified by the Air Force. Verification of technical publications is scheduled as part of test program planning and is implemented in accordance with the Technical Publications Quality Assurance Plan. The PTD-LEM coordinates with each PEO, human factors POs, and T&E POs to determine that verification has been planned, that it is performed in accordance with applicable requirements, and that discovered problems are being or have been corrected.

- Task 11

Support the preparation and update of logistic documentation. This task is similar to Task 9 presented in paragraph 6.2.1. Its implementation will be in a like manner, except that the efforts will be directed toward technical publications.

6.3 PREFACE TO TASK TABLE

Tables 6-1a and 6-1b list the tasks discussed in Sections 6.2.1 and 6.2.2, respectively, together with the corresponding data items and coordination required in the performance of the tasks. The schedules shown in these tables indicate the availability dates of data items relative to major program milestones. The ETD- and PTD-LEMs will prepare schedules for the completion of the tasks applicable to each CEI, using contract award dates as the basis for assigning calendar dates to each schedule.

TABLE 6-1a. ENGINEERING TECHNICAL DATA LEM TASKS (Sheet 1 of 2)

Tasks	Applicable Data Items	Coordination	Milestone Schedule
1. Assume that engineering technical data requirements are developed for each configuration end item (CEI) procurement.	1. AFSC form 40 2. Applicable DIDs	Systems engineering, each PEO, applicable logistic POs	RFP Release Contract Award SDR PDR CDR FCA T&E Production Release
2. Assume that engineering technical data are available for each item of Government furnished equipment (GFE).	1. GFE lists	Systems engineering, each PEO, SE-LEM	Initial List Update as necessary
3. Assume that CEI proposals are evaluated for the bidders' approach to the development and submittal of engineering technical data.	1. Proposals 2. SOW tasks 3. CDRLs 4. Review criteria	Systems engineering, each PEO	
4. Assume that contractor-prepared engineering drawing plans are reviewed/approved.	1. Engineering drawing plan (E-6117)	Systems engineering, each PEO	CA 90D Update as necessary
5. Assume that design change notices and engineering change proposals (ECPs) are reviewed and evaluated for their impact on engineering technical data.	1. Design change notices (N-7004) 2. ECPs (E-3128/A)	Systems engineering, each PEO, applicable LEMs	As required
6. Assume that requests for deviations/waivers are reviewed for their potential impact on engineering technical data.	1. Deviations/waivers request (E-3128/M)	Systems engineering, each PEO, applicable LEMs	As required
7. Assume that the results of design reviews and audits are reviewed and evaluated for their possible effects on engineering technical data.	1. Design review meeting minutes (E-3118) 2. Engineering data (E-7013, -7014, -7015)	Systems engineering, each PEO, logistic POs	SDR 30D PDR 30D CDR 30D
8. Assume that the first article review of each CEI includes an assessment of the adequacy and accuracy of the engineering technical data in presenting as-built conditions	1. Engineering data (E-7013, -7014, -7015) 2. Production Fabrication Spec. (E-3103A)		30D CDR

TABLE 6-1a. ENGINEERING TECHNICAL DATA LEM TASKS (Sheet 2 of 2)

Tasks	Applicable Data Items	Coordination	Milestone Schedule									
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&F	Production Release		
3. (Continued)	3. Computer program spec. (E-3120A) 4. CI development spec. (E-3102A/M) 5. Computer program development spec. (E-3119A) 6. Spec. change 7. Parts specs. 8. Data cards (L-3317) 9. Finish spec. (S-3598A)	Systems engineering, each PEO, logistic POs										
9. Support the preparation/ update of logistic documentation.	1. ILSP 2. Maintenance concept 3. ITP 4. TD-LEM Plan	Logistic POs, OPR for each document, applicable LEMs										

TABLE 6-1b. TECHNICAL PUBLICATIONS TECHNICAL DATA LEM TASKS (Sheet 1 of 2)

Tasks	Applicable Data Items	Coordination	Milestone Schedule									
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&E	Production Release		
1. Assume that the development, quality assurance, and sustaining efforts for technical publications are planned/implemented.	1. Technical Publications Program Plan 2. Technical Publications Quality Assurance Plan	Systems engineering, each PEO, SE-LEM, deployment and human factors POs	△	△	△	△	△	△	△	△		
2. Assume that technical publications are identified/developed to support the operation and maintenance of GFE.	1. GFE lists	Systems engineering, each PEO, SE-LEM, deployment and human factors POs	△	△	△	△	△	△	△	△		
3. Assume that technical publication requirements are identified for each CEI procurement.	1. AFSC form 40 2. Applicable DIDs	Human factors POs, each PEO	△	△	△	△	△	△	△	△		
4. Assume that CEI proposals are evaluated for the bidders' approach to the development and preparation of technical publications.	1. Proposals 2. SOW tasks 3. CDRLs 4. Review criteria	Systems engineering, each PEO, human factors POs	△	△	△	△	△	△	△	△		
5. Assume that contractor-developed technical publication plans are reviewed/approved.	1. TO publications plan (M-3401/M)	Systems engineering, each PEO, human factors POs	△	△	△	△	△	△	△	△		
6. Assume that ECPs and request for deviations/waivers are reviewed for their impact on technical publications.	1. ECPs (E-3128/M) 2. Deviations/waivers request (E-3129/M)	Systems engineering, each PEO, human factors POs	△	△	△	△	△	△	△	△		
7. Assume that LSAR data sheets are reviewed for information applicable to technical publications.	1. LSAR (XXX-SAMSO)	Logistic POs, each PEO, human factors POs	△	△	△	△	△	△	△	△		
8. Assume that the results of design reviews and audits are evaluated for their impact on technical publications.	1. Design review meeting minutes (E-3118)	Systems engineering, each PEO, human factors POs	△	△	△	△	△	△	△	△		
9. Assume that contractor validation of technical publications is performed.	1. Tech pubs for development programs (M-3418/H) 2. Validation records (M-3406)	Systems engineering, each PEO, human factors POs	△	△	△	△	△	△	△	△		

TABLE 6-1b. TECHNICAL PUBLICATIONS TECHNICAL DATA LEM TASKS (Sheet 2 of 2)

Tasks	Applicable Data Items	Coordination	Milestone Schedule							
			RFP Release	Contract Award	SDR	PDR	CDR	FCA	T&E	Production Release
10. Assure that technical publications are verified by the Air Force.	<ul style="list-style-type: none"> 1. Test planning analysis 2. Engineering data (E-7013, -7014, -7015) 3. Development program manuals (M-5413/H) 4. Calibration requirements summary (S-6177A) 	<ul style="list-style-type: none"> Each PEO, human factors POs, T&E PO 	◆	◆	◆	◆	◆	◆	◆	◆
11. Support the preparation/update of logistic documentation.	<ul style="list-style-type: none"> 1. ILSP 2. Maintenance concept 3. ITP 4. TD-LEM Plan 	<ul style="list-style-type: none"> Logistic POs, OPR for each document, applicable LEMs, human factors POs 	△							△

APPENDIXES

Appendix A: Missile-X Program Logistic Element Manager Directory . . .	A-1
Appendix B: Acronyms and Abbreviations	B-1
Appendix C: Schedule for Technical Publications Subelement	C-1

APPENDIX A

MISSILE-X PROGRAM LOGISTIC ELEMENT MANAGER DIRECTORY Col. L. E. Eklund, DPML				
Logistic Element	Manager	Code	Ext.	Room
Reliability Interface	Capt. T. M. Palmer	MNBR	5359	421
Maintainability Interface	Capt. A. D. Wadsworth	MNLE	4523	619
Nuclear Hardness and Survivability Interface	Capt. W. R. Jacobs	MNNH	7843	711
Maintenance Planning	Lt. Col. R. W. Ayars	MNLE	4523	619
Support Equipment	Lt. Col. B. W. Woolverton	MNNX	7005	138
Supply Support (Preoperational)	Mr. F. C. O'Connor	MNTD	6481	600
Supply Support (Operational)	Mr. J. A. Davidson	MNLM	5321	621
Transportation and Packaging	Mr. R. W. Riggs	MNTD	5474	600
Technical Data (Engineering)	Mr. L. E. Onstott	MNLM	5321	621
Technical Data (Technical Orders)	Maj. L. W. Cooper	MNTP	6684	609
Support Facilities	Mr. F. E. Longan	MNND	6891	408
Personnel and Training	Maj. L. W. Cooper	MNTP	6684	609
Logistic Support Resource Funds	Capt. H. B. Robbins	MNLA	5395	623
Logistic Support Management Information	Mr. J. L. Peterson	MNLA	5386	623

APPENDIX B
ACRONYMS AND ABBREVIATIONS

A&CO	— Assembly and Checkout
ADP	— Automatic Data Processing
AFALD	— Air Force Acquisition Logistics Division
AFLC	— Air Force Logistics Command
AFSC	— Air Force Systems Command
AFTEC	— Air Force Test and Evaluation Center
BTWS	— Buried Trench Weapon System
C/A	— Contract Award
CDR	— Critical Design Review
CDRL	— Contract Data Requirements List
CDRS	— Contract Data Requirements Substantiation
CDSR	— Cost Data Summary Report
CEI	— Configuration End Item
CFSR	— Contract Funds Status Report
CPR	— Cost Performance Report
DPML	— Deputy Program Manager for Logistics
DT&E	— Development Test and Evaluation
FCA	— Functional Configuration Audit
FCHR	— Functional Cost Hour Report
FMA	— Failure Mode Analysis
FSD	— Full Scale Development
ICBM	— Intercontinental Ballistic Missile
IOT&E	— Initial Operational Test and Evaluation
ILS	— Integrated Logistic Support
ILSMT	— Integrated Logistic Support Management Team
ILSP	— Integrated Logistic Support Plan
ISP	— Integrated Support Plan
ITP	— Integrated Test Plan
LEM	— Logistic Element Manager

LSA	— Logistic Support Analysis
LSAR	— Logistic Support Analysis Record
MDR	— Missile Design Review
MIC	— Management Information Center
MIS	— Management Information System
MPP	— Maintainability Program Plan
MTBF	— Mean Time Between Failures
MTTR	— Mean Time to Repair
MX	— Missile-X
OPR	— Office of Primary Responsibility
OT&E	— Operational Test and Evaluation
PCA	— Physical Configuration Audit
PDR	— Preliminary Design Review
PEO	— Project Element Officer
PMP	— Program Management Plan
PO	— Project Officer
RPP	— Reliability Program Plan
SAMSO	— Space and Missile Systems Organization
SBWS	— Shelter Based Weapon System
SDR	— System Design Review
SOW	— Statement of Work
SRA	— System Requirements Analysis
T&E	— Test and Evaluation
TI	— Technical Interchange
TPA	— Test Planning Analysis

APPENDIX C

TECHNICAL PUBLICATIONS SUBELEMENT SCHEDULE

	Validation/ System Definition	Full Scale Development					Production/Deployment
Major Subsystem Milestones	C/A △	MDR △	SDR △	PDR △	FCA △	Flight Tests △△△	IOC △
1. Tech. Pubs Pgm. Plan	△	Approve △	△	△	△	△	△
2. Tech. Pubs QA Plan		△	△	△	△	△	△
3. Tech. Pubs Reqmnts Dev.		△	△	△	△	△	△
4. Tech. Pubs Reqmnts Conf.		△	△	△	△	△	△
Missile Data			△	△	△	△	△
MAP Data			△	△	△	△	△
Depot Data			△	△	△	△	△
Valid./Verif.			△	△	△	△	△
5. Tech. Pubs. Development			△	△	△	△	△
OL/IL			△	△	△	△	△
OPS			△	△	△	△	△
Depot			△	△	△	△	△
Maint. Control			△	△	△	△	△
6. Quality Assurance Reviews			△	△	△	△	△
In Process Reviews			△	△	△	△	△
Post Production Review			△	△	△	△	△

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER W77-1953-TN11✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MISSILE-X PROGRAM LOGISTIC ELEMENT MANAGEMENT PLAN FOR TECHNICAL DATA LEMs		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s) A.N. Winter A.J. Fremer		6. PERFORMING ORG. REPORT NUMBER W77-1953-TN11
9. PERFORMING ORGANIZATION NAME AND ADDRESS ARINC Research Corp 2551 Riva Road Annapolis, Maryland 21401		8. CONTRACT OR GRANT NUMBER(s) F04606-76-A0087-R901
11. CONTROLLING OFFICE NAME AND ADDRESS DEPARTMENT OF THE AIR FORCE SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC) ICBM Program Office		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) DEPARTMENT OF THE AIR FORCE SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC) ICBM Program Office		12. REPORT DATE August 1977
		13. NUMBER OF PAGES 35
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
16. DISTRIBUTION STATEMENT (of this Report) UNCLASSIFIED		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> DISTRIBUTION STATEMENT A Approved for public release; Distribution Unlimited </div>		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)